

“Restoration of the Southern Iraqi Marshes”



- a challenging, contemporary and informative course on a world-class “hot topic”
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What Students Say:

“I really enjoyed this class. It was my favorite that I have taken at ISU.”

“I have really enjoyed this class. The subject matter and the format have been very informative, engaging and even inspiring.”

“...thank you for the information I gained from this course. I've considered wetland restoration courses before, and work in that area as well, but have not yet made that move. I learned enough in your class to answer most of my questions in that regard and I'll certainly be more actively involved in this in the future.”

Syllabus available from instructor:
Mr. Stuart M. Leiderman <leiderman@mindspring.com>

Stuart M. Leiderman, Environmental Response
"Environmental Refugees and Ecological Restoration"
P.O. Box 382, Durham, New Hampshire 03824 USA
603.776.0055 leiderman@mindspring.com

Sample Syllabus for 3-Credit, College-Level Online Course:

"RESTORING THE MARSHLANDS OF SOUTHERN IRAQ"

PART I: THE PAST: 3000 B.C. - 2002

Preconceptions; Speeches in Parliament;
Human and Environmental Dimensions; Demise?

PART II: THE PRESENT: 2003-2005

Ten Years= War, Five Years More; Re-entry, Reassessment;
Early Revival? Work to Do; Whose Marshes?

PART III: CAST OF CHARACTERS

United States; Iraq; United Nations;
Non-governmental Organizations and Academia; Business and Industry

PART IV: RESTORATION TOOLBOX

Conservation; Ecological Restoration; Wetlands;
Wetlands Restoration; Wadi Gaza Nature Park

PART V: THE FLORIDA CONNECTION

The Everglades; Marshlands Congressional Hearing
Ghosts of the Marshes; What Is Education For?

INTRODUCTION:

Throughout the 1990's, the regime of Saddam Hussein committed genocide and ecocide against the people and environment of Mesopotamia -- the vast marshlands between the Tigris and Euphrates rivers in Southern Iraq. The government did this through a secret "Plan for the Marshes" to drain away its life-giving water and attack, kill and scatter its half-million inhabitants who were predominantly Shi'a Moslem and perceived to be a threat to the ruling Ba'athists who were predominantly Sunni Moslem. Today, the former regime is gone and other forces occupy the country, but Mesopotamia is still a depopulated wasteland.

A new plan for the marshes is urgently needed to restore the environment and permit the return of refugees and others who might settle there and resume their distinctive way of life. For restoration models, the degraded Florida Everglades is comparable in size, but that project has become extremely politicized and there is little progress to report despite the promise of commitment of billions of dollars. And while the Everglades is principally a wildland -- birds, reptiles, panthers, grass, reeds and trees -- Mesopotamia is a homeland whose pastoral and fishing communities, until recently, provided large amounts of food and fiber for all of Iraq.

The task of restoring Mesopotamia is just beginning. It will require the confidence, courage, willingness, resources and know-how of teachers, students, scientists, engineers, doctors, humanitarians, environmentalists, journalists and businesses from all over the world. Already, major participants include Iraq's Ministries of Environment and Water Resources, the University of Basrah, the U.S. Agency for International Development [USAID], the U.N. Environment Programme [UNEP], Iraq Foundation, AMAR Appeal, al-Khoei Foundation, Bird Life International, Wetlands International and the International Union for the Conservation of Nature. For success, their work must be assertive, coordinated, ethical and cost-effective. It must include native Iraqis, especially marsh refugees, and preserve the continuity of indigenous marsh culture. It must be able to resist the counter pressures of Big Oil, agribusiness, urbanization and Western-style development. In the instructor's opinion, the job is too big for experts alone. Nevertheless, there is a need for a "Jacques Cousteau (or Jane Goodall) of the Marshes" who could come from anywhere

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on Earth -- even from a college campus -- to champion the cause of the marshlands, the surviving refugees and a new generation of a half-million Mesopotamians.

The instructor (Leiderman) has studied, written, lectured and organized programs about Southern Iraq for more than ten years. He has extensive files and contacts accessible to students, and is working on the creation of a Center for Southern Iraq Restoration Studies at Basrah University, located between the marshes and the Persian Gulf in Iraq's second-largest city. He believes the greatest possible participation is necessary for restoring and protecting Mesopotamia's marshlands. He recently co-authored "Twilight People: Iraq's Marsh Inhabitants"
<<http://www.carnegiecouncil.org/viewMedia.php/prmTemplateID/8/prmID/4458>>

HYPOTHESIS

An online course of study can offer students a way to learn about the marshlands of Southern Iraq and develop opportunities to become involved in the restoration effort as, for example, an "online intern" for an organization, agency, community or individual directly involved in some aspect of the restoration effort.

GOALS

Students will learn about and appreciate the plight of the marshlands and become familiar with the needs and plans for their restoration. They will become aware of the diversity of individuals and organizations needed to accomplish region-sized ecological restoration, refugee resettlement and wetlands management.

OBJECTIVES

The course aims to help internationalize the effort to restore and re-inhabit the marshlands of southern Iraq. It also aims to increase the resources and support available for the job. Thus, students who satisfactorily complete the course will be considered qualified to be "electronic interns" for Iraqi and other environmental and humanitarian agencies and organizations. Their work could range from research to education, fundraising to day-to-day correspondence with refugees, scientists, engineers and other professionals.

PLAN OF THE COURSE

The course is divided into five major parts (The Past, The Present, Cast of Characters, Restoration Toolbox, The Florida Connection) that, in turn, are divided into five sub-topics each. This makes for 2-3 online discussion sessions per week. A research/writing assignment on the material covered is due following completion of each of the five major parts.

In the syllabus below, the Instructor introduces each major part, then gives brief introduction for each subtopic, followed by a discussion assignment and a reading list, including internet addresses, of articles, speeches, reports, interviews and other documentation. Most readings are available on the internet by following the hyperlinks; some readings from the instructors personal files will be provided by e-mail. The National Geographic articles are not online and are too large for satisfactory scanning, so must be read in libraries.

The course is primarily unsynchronized, meaning that the course website site is always open. In other words, students may post their assignments and follow-up discussions at any time by going to the course homepage, clicking the appropriate link, going to the list of discussion and writing sessions and then to the appropriate subtopic. The "thread" of postings for each session simply accumulates in its own slot and can be revisited at any time. The instructor will join the discussion from time to time to clarify or add points of view, probe the group on what it is learning and suggest how students' research may lead to direct involvement in the ongoing marshlands restoration effort.

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The instructor may also offer optional synchronized sessions where students can log on to the site and "chat" as a group at times that are convenient for most students. This will depend on work schedules, access to computers, time zones, etc. In addition, students are encouraged to phone the instructor for individual attention, 603.776.0055

ASSIGNMENTS -- please read carefully

Students are to log onto the course website at least twice for each discussion and writing assignment -- once to post their work and at least once more to post comments and reactions to other students' postings.

The discussion assignments are to be posted on the dates shown in the Calendar. Each assignment should directly and clearly answer the assignment question, refer to the assigned readings and be approximately 750 to 1000 words in length.

The writing assignments are to be e-mailed to the instructor on the dates shown in the Calendar. They should directly and clearly answer the assignment questions, refer to the assigned and any additional readings and be approximately 2500 words in length. The instructor will review and privately comment on the writing assignments, after which the students are free to correct and/or amend them and then post them in the appropriate slots on the course site for reading, review and comment by the whole class. For best results, prepare an outline, notes or rough draft of each paper while you are reading and discussing the topics in that particular part of the course. This will enable you to write papers that are a natural result of your online work.

GRADES -- please read carefully

C = average work, timely completion of assignments and at least one follow-up posting per session.

B = good work, characterized by frequent, thought-provoking online participation.

A = exceptional work, showing punctuality, thoroughness, enthusiasm and originality.

There are 25 individual discussion sessions, each worth 3 points (1=C, 2=B, 3=A), thus 75 points possible. There are 5 written assignments, each worth 5 points (3=C, 4=B, 5=A), thus 25 points possible.

Extra credit: *Students can earn up to 10 extra points for initiating, regularly conducting and posting to the course their e-mail with anyone of their choice who is actually involved in Iraq's marshlands restoration or refugee resettlement or concerned about them in some way. This can be scientist, engineer, government official, member of a citizen's organization, marshlands refugee or resident, etc. anywhere in the world.*

To avoid hair-splitting, the instructor can give up to 5 additional bonus points towards the total.

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ONLINE DISCUSSION SESSIONS (equivalent to 90-minute class that meets twice a week)

Orientation to the Online Course

- I-1 Preconceptions**
- I-2 Emma Nicholson's Speeches in British Parliament**
- I-3 Human and Environmental Dimensions**
- I-4 Human and Environmental Dimensions (continued)**
- I-5 Demise?**

Research/Writing Assignment Due for Part I: The Past Years More

- II-1 Ten Years= War, Five Years More**
- II-2 Re-entry, Reassessment**
- II-3 Early Revival?**
- II-4 Work to Do**
- II-5 Whose Marshes?**

Research/Writing Assignment Due for Part II: The Present

- III-1 United States**
- III-2 Iraq**
- III-3 United Nations**
- III-4 Non-governmental Organizations and Academia**
- III-5 Business and Industry**

Research/Writing Assignment Due for Part III: Cast of Characters

- IV-1 Conservation**
- IV-2: Ecological Restoration**
- IV-3: Wetlands**
- IV-4: Wetlands Restoration**
- IV-5: Wadi Gaza Nature Park**

Research/Writing Assignment Due for Part IV: Restoration Toolbox

- V-1: The Everglades 1**
- V-2: The Everglades 2**
- V-3: Marshlands Congressional Hearing**
- V-4: Ghosts of the Marshes**
- V-5: What is Education For?**

Research/Writing Assignment Due for Part V: The Florida Connection

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PART I. THE PAST: 3000 B.C. - 2002

While it might seem strange to compress the past five thousand years into a single era, it could be argued that this particular kind of catastrophe in Southern Iraq -- strangling by thirst -- is something that has never happened before. Indeed, the multiple crossroads of this crisis may never have happened in such a combination -- Sunni versus Shi'a, oil versus water, rural versus urban, tribal versus corporate, irrigated versus dryland agriculture, vengeful engineering versus sustainable stewardship, and a host of other antagonisms. Scientists and refugees alike have witnessed the almost-complete disappearance of this vast watery region; there does not seem to be much time for Iraqis and the world-at-large to develop and cooperate on a strategy for its rescue and rejuvenation.

I-1 Preconceptions:

In times of crisis, one's preconceptions can be incendiary -- they can act as a fire-retardant or as an arsonist's accelerant. For many years, especially during the crisis in the marshlands of Southern Iraq following the Persian Gulf War, numerous writers, journalists, politicians and others have referred to this region in ancient and Biblical terms such as "Babylonia" and "Garden of Eden" and its most recent refugees as "exiles from Eden". These terms invariably trigger certain kind of preconceptions in the minds of readers and listeners around the world, much the same way that the term "Holy Land" triggers preconceptions about Israel and the Palestinian Territory. Preconceptions, however, can obscure reality and one's ability to think critically and solve problems; they can also imprison entire regions and cultures to a time in the past such that neither the land nor the people could survive in today's world.

Southern Iraq and the Holy Land are not the only cases that come to mind; another is Haiti, whose triumphant slave revolt against France in 1804 seems to have left the new country chained to two additional centuries of home-grown despots -- one wonders about the preconception "once a slave, always a slave". Looking back thousands of years from a vantage point in the Middle East, it could be said that the Garden of Eden was the ancient core of the Fertile Crescent, a band of early civilization that spread northwesterly along the Tigris and Euphrates Rivers, then westward to the Mediterranean and then southward along the eastern seacoast toward the Sinai Peninsula. But this once-fertile core was made into a barren wasteland, almost completely deprived of water, extensively laced with toxic chemicals, land mines and depleted uranium. Thousands of feet below this troubled land are amounts of petroleum of gigantic, Biblical proportion. What are the operative preconceptions here? Whose will prevail?

For Online Discussion:

Before you go to the references, briefly present your preconceptions of the land and people of the marshlands of Southern Iraq. Speak from personal experience and from what you've already learned from school, travels, friends, news reports, etc. Then, go to the references and:

- a) try to come to terms with the power of preconceptions, for example, the ones that attract or repel people from certain places, controversies and problems, or others that obscure, exaggerate, twist or fantasize about the real world,
- b) see whether the references about the marshlands reinforce or refute your preconceptions about that place and those people, and
- c) think about how preconceptions might affect the fate of the marshes.

References:

I-1a **[audio]** World Vision. 2004. Guest Diaries: Dr. Sheri Fink: Marsh Arabs. August 1. [mp3 file; let the whole file download before playing]
http://www.worldvision.org/worldvision/radio.nsf/stable/wvradiostory_080104_sherifinkmarsharabs

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I-1b **[audio]** Southern California Public Radio. 2003. AirTalk: Restoring the "Garden of Eden" in Iraq. KPCC89.3FM. August 12.

http://www.kpcc.org/programs/airtalk/listings/2003/08/airtalk_20030811.shtml

I-1c Preconceptions Meet Reality 2003-2004

**<http://hyl.edu.hel.fi/~preconception/index.php?page=info>

**<http://www.blogs.fi/preconception/>

I-1d Poems About Preconceptions

<http://www.fantasticpoems.com/Poetry-Trails/About-Preconceptions.html>

I-1e Poems of Lewis Carroll

<http://www.theotherpages.org/poems/carrol01.html>

I-1f Spencer, Michael. 1982. The Marsh Arabs Revisited. Saudi Aramco World. March/April, v. 33 no. 2.

<http://www.saudiaramcoworld.com/issue/198202/the.marsh.arabs.revisited.htm>

I-1g Iaputanlogic.com. 2004. Marsh Arabs. January 27.

<http://www.iaputanlogic.com/articles/2004/01/24-0001.html>

I-1h Iaputanlogic.com. 2004. Marsh Arabs (Part II). January 28.

<http://www.iaputanlogic.com/articles/2004/01/28-0002.html>

I-1i FreeRepublic.com 2003. commentary on Pearce, Fred. 2003. Saddam Drained the Garden of Eden: Reclaiming an Iraqi Eden: Saddam Hussein turned a thriving marshland into a poisoned desert. Can it be restored? Boston Globe. April 1.

<http://209.157.64.200/focus/f-news/887208/posts>

I-1j Martin, Glen. 2003. A dream of restoring Iraq=s great marshes: Wetlands destroyed by Hussein could thrive again. San Francisco Chronicle. April 7.

<http://sfgate.com/cgi-bin/article.cgi?f=/c/a/2003/04/07/MN293104.DTL&type=science>

I-1k Ellis, Richard. 1967. Serifa (reed Building) Mudhif. Bryn Mawr College.

<http://www.brynmawr.edu/Acads/Cities/wld/00145/00145im.jpg>

I-1l Ellis, Richard. 1967. Mudhif (interior view). Bryn Mawr College.

<http://www.brynmawr.edu/Acads/Cities/wld/00145/00145jm.jpg>

I-1m Bachmann, Anna Sophia. 2004. In the house of the closed doors. July 8

**http://peacework.blogspot.com/archives/2004_07_01_peacework_archive.html

I-2 Emma Nicholson's Speeches:

Baroness Emma Nicholson of Winterbourne was a member of the British Parliament during the early 1990's - now member of the European Parliament -- and one of the first Western-government representatives to visit Southern Iraq and nearby Iranian refugee camps after the end of the Persian Gulf War in 1991. She gathered stories of horrific persecution by Saddam Hussein's regime on the people of the marsh region, and used the word "genocide" to denote the Iraqi government's intention eliminate this historically indigenous culture of approximately half a million. Her oratorical and writing skills and field organizing experience has earned her a place at the table of those who are currently most involved in the marsh region.

To provide humanitarian relief to tens of thousands of refugees and displaced Iraqis, Nicholson established a charitable organization named "AMAR Appeal" whose acronym represents "Assisting Marsh Arab Refugees".

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AMAR is still in existence and its staff was one of the first among non-governmental organizations to return to Southern Iraq after last year's re-invasion. AMAR has an annual budget of approximately \$3 million and offers refugees and returning Marsh Inhabitants a variety of medical and social services.

For Online Discussion:

Read Nicholson's speeches silently. What effects do her words have on you? Then read the speeches out loud, preferably to someone else. Is there a difference? How does Nicholson combine facts with emotion? Do you believe her? Are you inspired? Have you heard someone recently give a speech about a humanitarian or environmental subject? Do you think you could write and give one? What would the subject be?

References:

Emma Nicholson, Member of European Parliament [website]:

I-2a <http://www.emmanicholson.org.uk/> and

I-2b http://www.emmanicholson.org.uk/the_marsh_arabs.html

Speeches of Baroness Emma Nicholson, Member of Parliament

I-2c <http://www.parliament.the-stationery-office.co.uk/pa/cm199192/cmhansrd/1991-12-12/Debate-17.html>

I-2d <http://www.parliament.the-stationery-office.co.uk/pa/cm199192/cmhansrd/1991-12-12/Debate-18.html>

I-2e <http://www.parliament.the-stationery-office.co.uk/pa/cm199293/cmhansrd/1992-09-25/Debate-4.html>

I-2f <http://www.parliament.the-stationery-office.co.uk/pa/cm199293/cmhansrd/1993-04-02/Debate-1.html>

I-2g <http://www.parliament.the-stationery-office.co.uk/pa/cm199394/cmhansrd/1993-11-19/Debate-4.html>

I-2h <http://www.parliament.the-stationery-office.co.uk/pa/ld199798/ldhansrd/vo971202/text/71202-11.htm>

**I-2i The Human Rights of the Sukan Al-ahwar (Marsh Arabs of Iraq), Baroness Emma Nicholson of Winterbourne, Speech delivered at the Mesopotamian Marshes Conference, 10/30/04, Harvard University. <http://cceia.org/viewMedia.php/prmTemplated/8/prmID/5135?PHPSESSID=3c9cee431ee25d3f667d399b3279a377>

I-3 & 4 Human and Environmental Dimensions:

Three years after the end of the Persian Gulf War, AMAR Appeal commissioned British professor and scientist Edward Maltby to prepare "An Environmental and Ecological Study of the Marshlands of Mesopotamia" [1994] that reviewed in great detail the geological and hydrological history of the region, the flora and fauna of the ecosystem, the livelihoods they supported, the recent engineering works and their consequences that severely distorted and depleted the marshlands, and several scenarios that could affect the fate of the marshes for the better or for the worse. That 200+ page, single-spaced report was relatively technical and had a limited circulation among people who were deeply concerned about the marshlands and who wanted to have a compendium of sorts upon which to build their own projects leading towards restoration.

In 2000 and 2001, AMAR hosted two major conferences on the subject of the marshlands, inviting several specialists to present papers that then became a book for the more general reading public, "The Iraqi Marshlands: A Human and Environmental Study". It was co-sponsored by IUCN [International Union for the Conservation of Nature, also known as The World Conservation Union], ODA [Overseas Development Administration, UK], The Red Crescent Society of Kuwait, The US Department of State and WWF [World Wildlife Fund International, Geneva]. There are 16 major papers plus a report based on a survey questionnaire covering 400 marsh refugee households in two Iranian camps.

In 2003, Baroness Emma Nicholson of AMAR Appeal moderated a Brookings Institution forum, "The Iraqi Marshlands: Can They Be Saved?" <http://www.brookings.edu/com/events/20030507marsh.htm>

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For Online Discussion:

Skim the book once for a general feeling of the intensity of the crisis that existed in Southern Iraq after ten years of extremely aggressive humanitarian and environmental persecution. Discuss what information seems to match or reinforce your preconceptions of the situation there and what seems to refute them or add significantly to your understanding of what life was like at that time, approximately 10-11 years from 1991-2001. Then, go back through the book and pick out ten categories or elements of natural and human life in the region that will have to be restored or repaired, for example, the availability of water, reeds, certain animal species, housing, boats, etc. Discuss how easy or difficult you think it would be to bring things back to "normal." Don't wallow in the tragedy of it all; instead, start thinking positively.

References:

I-3&4a Sierra Club Legal Defense Fund. 1994. The 1994 Draft Declaration of Principles on Human Rights and the Environment.
<http://fletcher.tufts.edu/multi/www/1994-decl.html>

I-3&4b Clarke, Peter and Shawn Magee, eds. 2001. The Iraqi Marshlands: A Human and Environmental Study. AMAR Appeal. 256pp.

**I-3&4b1 <http://www.amarappeal.com/books.php> (introduction)

**I-3&4b2 <http://www.reliefweb.int/rw/RWB.NSF/db900SID/OCHA-64CRQ4?OpenDocument> (summary)

I-3&4b3 <http://www.reliefweb.int/library/documents/2001/amar-irq-30nov.pdf> (text)

I-3&4c Brookings Institution. 2003. Transcript to forum "The Iraqi Marshlands: Can They Be Saved? Assessing the Human and Ecological Damage". May 7.

I-3&4c1 <http://www.brookings.edu/comm/events/20030507.pdf>

I-3&4c2 <http://www.brookings.edu/comm/events/20030507marsh.htm>

I-5 Demise?:

The United Nations Environment Programme's [UNEP] report, "The Mesopotamian Marshlands: Demise of an Ecosystem" appeared in 2001, ten years into Iraq's ecocide and genocide against Southern Iraq. It is both startling and timid – startling because of the way it uses Earth satellite imagery to portray the disappearance of the wetlands, but timid in the way it skirts the culpability of the Iraq government and puts the situation in a passive kind of language, "The demise of the Mesopotamian marshlands is part and parcel of an underlying hydrologic catchment problem: growing demands on the dwindling water supplies of the Tigris-Euphrates basin." [p. viii]

The writing and compilation of imagery comparing views taken over approximately 30 years was done by Hassan Partow, a relatively young Iraqi scientist working with UNEP's mapping unit in Geneva, Switzerland. He has continued to be of extraordinary help to the circle of individuals, organizations and agencies beginning to cooperate on restoration efforts. Most recent, Partow produced a set of images showing the return of surface water to scattered portions of the marshlands during the middle of 2003, after Iraqi armed forces abandoned the network of dams and canals that criss-cross the South. In some cases, Iraqi government irrigation officials themselves open the water gates after troops fled northward.

For Online Discussion:

Read the UNEP report and discuss the parts that are most easily understood and that make the most lasting impression on you. Then discuss the parts that are the most difficult to understand and what might be done to make them more easily understood. What parts do you believe will be most critical to keep in mind for a conceivable restoration projects? [Example hint – on page 16, "Water-buffalos play a pivotal role in Marsh

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Arab existence, whose standing in their social and economic life has been compared with that of the camel to Bedouin Arabs."]

References:

I-5a Partow, Hassan. 2001. The Mesopotamian Marshlands: Demise of an Ecosystem. United Nations Environment Program, Geneva, Switzerland.
<http://www.grid.unep.ch/activities/sustainable/tigris/mesopotamia.pdf>

I-5b U.S. Geological Survey. 2001. Earthshots: Satellite Images of Environmental Change: Iraq-Kuwait: 1972, 1990, 1991, 1997.

I-5b1 <http://edc.usgs.gov/earthshots/slow/Iraq/Iraq>

I-5b2 <http://edc.usgs.gov/earthshots/slow/Iraq/Iraqtext>

Research/Writing Assignment for Part I:

Create a general test of knowledge about the marshlands of Southern Iraq, including the crisis of the past 10-15 years. It should have a minimum of 10 questions and one map. Give the test to at least 20 people from a variety of backgrounds and experiences, e.g. student, office worker, scientist, retired person, soldier, clerk, etc. Prepare an answer sheet, including your sources of information, and give a copy to everyone who takes the test. Then, tabulate, analyze and discuss the answers and the combined results. E-mail to the instructor by the beginning of next week.

PART II. THE PRESENT: 2003 - 2005

In 2003, the crisis of the marshes may have reached a kind of breakpoint. The results of Iraqi government attacks on the region -- bombing, burning, extensive drainage and desiccation -- had been photographically documented from space for ten years. Then, in 2001, the evidence and implications were officially recognized by the United Nations Environment Programme as an ecological catastrophe of global significance. For the next two years, this high-altitude alarm sunk into world consciousness while Iraq continued to prohibit observers into the marshes. A few humanitarian aid workers were helping several thousand marsh refugees in Iranian relief camps. Some Americans had gone illegally to Iraq and were working in the vicinity of Basrah; they reported extensively on the disastrous social and health effects of international trade sanctions against the Saddam Hussein regime. Instead of bringing down the tyrant, the sanctions were killing thousands of innocent people through poverty, malnutrition and illness. In America, members of the Iraq Foundation persuaded the Department of State to include their concern for the marshes in the government's broad support to Iraqi opposition groups. The Department gave the Foundation approximately \$200,000 to assemble a scientific panel to consider the feasibility of marsh restoration. That report was released early in 2003. Although the recommendations were lukewarm, the report triggered a pulse of media coverage about the plight of the marshes that preceded the re-invasion of Iraq and lasted for several months.

II-1 Ten Years= War, Five Years More:

Early in 2003, writers and broadcasters seem to have re-discovered the alarming evidence about the marshes disclosed by the United Nations Environment Programme. A sense of urgency is expressed because of the possible irreversible deterioration taking place. For news purposes, the stories seem to be caught between two themes: one that is already memorializing the marshes and the people who used to live there, and one that detects a certain kind of idealism that the region could indeed be restored. In an incidental way, these themes tie into the controversy of continued searches for weapons of mass destruction. If the search doesn't continue, and inspection teams leave Iraq altogether, there will also be no new on-the-

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ground information about the plight of the marshes. This means deterioration there will continue. On the other hand, if inspections continue and the U.S. and allies actually re-invade Iraq after being away for more than ten years, there is a possibility that the marshes will receive the attention they need to recover. Knowing what we do now, namely that plans for re-invading Iraq were developing quite some time before 2003, it is conceivable that this intention was signaled to the Iraq Foundation in discussions about the marsh restoration feasibility study. In effect, the money would also be a way to acquire the support of Iraq-related environmentalists when the U.S. went back to war.

For Online Discussion:

In news writing and broadcasting, the language used is critical to framing the subject and influencing the readers', listeners' and viewers' perception and motivation. How does the choice of adjectives about people, places and things in the story of the marshes affect your impressions and understanding of what happened there, what is happening now and what could happen in the future? Assuming you are searching for specific clues that might be useful in the restoration process, what specific ones seem to help or hinder your effort?

References:

II-1a **[audio]** National Public Radio. 2004. New hope for Iraq's Marsh Arabs. Morning Edition. January 21. <http://www.npr.org/features/feature.php?wfld=1605026> (or type title into search engine)

II-1b McCarthy, Rory. 2003. Saddam=s troublesome marsh dwellers left high and dry by drainage. The Guardian. January 6. <http://www.guardian.co.uk/international/story/0,3604,869151,00.html>

II-1c Spindle, Bill. 2003. Exile wants to return life to marsh Hussein drained: Hussein reduced "Garden of Eden" on Tigris and Euphrates to salt-encrusted wasteland. Wall Street Journal, January 27. Reprinted at http://www.iraqfoundation.org/projects/edenagain/2003/ajan/27_exile.html

II-1d McGeough, Paul. 2003. The last of the Marsh Arabs. theage.com.au. February 27. <http://www.theage.com.au/articles/2003/02/26/1046064103640.html>

II-1e United Nations Environment Programme. 2003. "Garden of Eden" in Southern Iraq likely to disappear completely in five years unless urgent action taken. March 22. http://www.grid.unep.ch/activities/sustainable/tigris/2003_march.php

II-1f Hirsch, Tim. 2003. Iraq marshes vanishing. BBC News. March 22. http://news.bbc.co.uk/2/hi/middle_east/2875311.stm

II-1g United States Embassy Islamabad. 2003. Text: UNEP calls for action plan to save Iraqi marshlands: Tells World Water Forum marshlands disappearing at alarming rate. March 25 <http://usembassy.state.gov/posts/pk1/www03032511.html>

II-2 Re-entry, Reassessment:

By spring of 2003, the war had started, and American and British troops were fighting in the southern part of the country over dry deserts that were once fertile marshlands. News articles began to speculate on the opportunity to restore the region before ecological deterioration became permanent. There was a feeling of a race against time. United Nations agencies began to weigh in on the subject, as well as American government officials and representatives of international non-governmental organizations. Writers continued to emphasize the region=s ancient history and the debt of Western civilization to the culture developed by ancestors of today=s people of the marshes.

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For Online Discussion:

How effective do you think it is to talk about the marshes in Biblical terms such as "Eden" and "Cradle of Civilization"? To whom does this appeal? Americans? Europeans? Africans? Asians? Does it recall how stories of the plundering of the Holy Land by Turks, Arabs, Egyptians and Persians plunder the Holy Land by Turks, Arabs, Egyptians and Persians helped generate the waves of Crusades during the Middle Ages? What other examples come to mind?

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II-2f Anonymous. 2003. Mythical Garden of Eden now a wasteland. Sify News. April 12.
<http://headlines.sify.com/news/fullstory.php?id=13006461>

II-2g Holtey, Athena. 2003. "Almost gone...but not forgotten: An Iraqi kayaker remembers his homeland as a paddler=s paradise." TopKayaker.Net. April 12.
<http://www.sit-on-topkayaking.com/Articles/NatureIssues/Iraq.html>

II-2h United Nations Environment Programme. 2003. Desk Study on the Environment in Iraq. April 24.
http://postconflict.unep.ch/publications/Iraq_DS.pdf

II-3 Early Revival?:

By late spring, the American military had passed over the former marshlands and were occupying Baghdad. The fate of the marshes seemed to be an open subject. There was evidence that, in a few places, Iraqi engineers had opened a few flood-gates to the marshes and that some residents had broken through embankments in order to get fresh water flowing again. Some people began to experience a life in the marshes that had abruptly stopped more than ten years earlier; meanwhile, the news media began to wonder whether the marshes could recover by simply bringing the water back or whether a more complicated and experimental management strategy was going to be required.

For Online Discussion:

Put yourself in the sandals of a marsh refugee who has been living in a camp in Iran for more than ten years and who has just learned that your home region has just been "liberated" by the Americans. What are your

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considerations, requirements, needs for information, assurance and assistance for deciding whether to leave the camp and go home?

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II-3c Molavi, Afshin 2003. Iraq's Eden: Reviving the legendary marshes. news.nationalgeographic.com May 1.

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II-4 Work to Do:

By mid-2003, visitors to the marsh region have discovered more in two or three months than anyone has learned in the more than ten previous years, perhaps even twenty. There are numerous questions about the future of the marshes: Will they recover by natural forces alone? If not, who will do the work? Will returning refugees have places to live and work? Will they get in the way? Is there a preferred step-by-step restoration plan? Can, and should, all the marshes be restored or only a portion? Who will decide the future of the region? There is an obvious and serious void here: the absence of a pre-existing grass-roots (or reed-roots) movement or interest group former marsh inhabitants. Furthermore, there are very few, if any, individuals from the marshes who have articulated a vision of the future that others could support. The situation is of a scattered people who at one time collectively adapted to conditions in the marshes but who did not have an institutional identity or a recognized inalienable right to exist within Southern Iraq and among the world community of nations as "people of the marshes." In this way, they shared the plight and vulnerability of millions of other indigenous people on all continents.

For Online Discussion:

As you read these articles, are you optimistic or pessimistic about the future of the marshes? Could you see yourself becoming involved? What role do you think you could play? What assignment would you like to have? Would it be predominantly ecological or humanitarian? What capabilities do you already have for the work? What else would you do to prepare yourself?

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II-4a Basu, Paroma. 2003. Paradise regained? A plan to restore Iraq=s wetland graveyard. The Village Voice. May 21-27.

<http://www.villagevoice.com/issues/0321/basu.php>

II-4b El-Awady, Aisha. 2003. Mesopotamian marshlands: Going down the drain? IslamOnline.net. May 22.

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<http://www.seacoastonline.com/2003news/05252003/world/30628.htm>

II-4d United Nations Environment Programme. 2003. Water returns to the desiccated Mesopotamian marshlands. May 28.

http://www.grid.unep.ch/activities/sustainable/tigris/2003_may.php

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<http://www.planetark.org/dailynewsstory.cfm/newsid/20985/story.htm>

II-4f United Nations Office of the Humanitarian Coordinator for Iraq, Lower South. 2003. United Nations Inter-Agency Assessment of Vulnerable Groups: Part I: Marsh Arabs. June 30.

<http://www.reliefweb.int/library/documents/2003/ohci-irq-30jun.pdf>

II-5 Whose Marshes?:

By the end of 2003, the war had passed by the marshes; most of the conflict was taking place near Baghdad. The South was under the military control of British troops but the development future of the region was under the control of the United States. It was primarily up to Congress to determine how much money would be spent for which projects; oddly, funds requested for restoring the marshes were completely refused, leaving only \$4 million from the Department of State=s Agency for International Development earmarked in an ad hoc fashion to a single private contractor for preliminary studies. Some remaining survivors of the former marshes were beginning to speak out, and the new Iraq ministries of water resources and environment had created an office for marsh restoration, but in the absence of restoration funds, no actual work was going to take place.

For Online Discussion:

After studying a year=s worth of documents about the marshes, what can you say about the cast of characters -- the writers, the former marsh inhabitants, the scientists, the government officials, organizational representatives and others. How many of each are there? Is their power and influence commensurate to their numbers? Can you imagine a way to coordinate them into a single restoration project?

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II-5a Randerson, James. 2003. Iraqi=s reclaim their ancient wetlands. NewScientist.com. October 1.

<http://www.newscientist.com/news/print.jsp?id=ns99994217> or

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<http://www.globalsecurity.org/wmd/library/news/iraq/2003/10/iraq-031030-30e68673.htm>

II-5h Caroline Hawley. 2003. New hope for Iraq's Marsh Arabs. BBC News. November 5.

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II-5i Komarow, Steven. 2003. Marsh Arabs long for return of wetlands. USA Today. November 25.

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<http://www.mindfully.org/Water/2003/Iraq-Wetland-Restoration28dec03.htm>

II-5l Coalition Provisional Authority. 2004. Iraqi Marsh Arabs Discuss Future of Wetlands. March 22.

http://www.iraqcoalition.org/pressreleases/20040322_marsh_arabs.html

II-5m Twair, Pat. 2004. Reviving Eden. Saudi Aramco World. May/June.

<http://www.saudiaramcoworld.com/issue/200403/reviving.eden.htm>

Research/Writing Assignment for Part II:

From a minimum of 30 references about the plight of the marshes published in 2004, choose three distinctive themes contained in them, and assess the relative strengths and weaknesses of the information relative to what you might need for a restoration project. For example, if you choose the marsh refugees as one theme, were they just talked about as people who used to live there, or were they also identified as people who deserve to have a stake in restoring the marshes? Were they described as people who came from the general marsh region, or were they identified as members of specific tribes from particular locations who might have valuable knowledge about how to restore those locations? Said another way, for each theme, what critical information was provided and what was missing? Does this give you some hints why people can be relatively well-informed about urgent environmental and humanitarian crises but at the same time not be able to do much about solving them?

PART III. CAST OF CHARACTERS

As in any gripping drama, the story of the marshes has a formidable cast of characters. You will recognize protagonists, antagonists, innocent and not-so-innocent multitudes, leaders, followers, opportunists, zealots, ambivalents, armchair generals, observers, analysts, pundits and panderers. In addition, because the marshlands occupied one of the world's great geographical and cultural crossroads for thousands of years, the characters have hailed from all corners of the globe. And, because of gigantic deposits of crude oil and

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gas a thousands of feet below the surface, some characters have a narrow but insatiable appetite for that buried treasure -- they care not a wit for the plight of the people and places above.

To restore the marshes, the outlines of its past are important, but the shape of its future is absolutely essential. Looked at in this way, while the cast requires some old characters, especially those who remember when and how the water used to flow through Mesopotamia, it also needs a constant supply of new characters; it may take generations to repair the damage of a single devastating decade. Likely, they will not all come from Iraq nor even from the Middle East. Indeed, in this drama, all the world's the stage.

III-1 United States:

By virtue of its military occupation of Iraq, its considerable spending power, and its monopoly on coordination of reconstruction work, the United States Government has the potential to make or break the future of the marshlands. But to date, very little actual restoration has occurred, while ecological deterioration continues except in a few locations where water has minimally returned. The White House, Department of State including the Agency for International Development, Congress and an inner circle of consultants and contractors have exhibited a discernible ambivalence towards the marshes and its former inhabitants, and they have discouraged efforts to internationalize the restoration effort. Only a small amount of money has been allotted, mainly for preliminary studies. Despite wide public interest in and fascination with the history of the marshlands and sympathy for its demise, the Government has produced no comprehensive strategy, has no regularly-occurring public meetings, and has made no significant effort to inform, inspire and tap into the considerable technical capabilities of American universities and engineering firms similar to the way it has promoted reconstruction of Iraq's energy, water and transportation infrastructure. Overall, there seems to be a distinct bias towards urban and agricultural development of the land the marshes once occupied, rather than an intention to restore the marshes to their full extent as a functioning wetlands region of global importance. For reference, relevant U.S. Government websites are:

Coalition Provisional Authority: <http://www.iraqcoalition.org>
Embassy of the United States, Baghdad, Iraq: <http://iraq.usembassy.gov>
Multi-National Corps-Iraq and Multi-National Force-Iraq: <http://www.mnf-iraq.com>

For Online Discussion:

How would you make use of the capabilities of the U.S. Government and American society to restore the marshes of Southern Iraq? What obstacles would you expect? How would you overcome them?

References:

III-1a **[audio]** Here-and-Now. 2003. Restoring Iraq's marshland. April 8.
<http://www.here-now.org/shows/2003/04/20030408.asp>

III-1b United States Agency for International Development. 2003. Iraq reconstruction: Environmental protection and natural resource management. March 21.
<http://www.state.gov/g/oes/rls/fs/2003/19225.htm>

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<http://www.usaid.gov/press/speeches/2003/sp030507.html>

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http://www.cpa-iraq.org/regions/CPA_South.doc

III-2 Iraq:

In mid-2003, administrative specialists from the United States re-formed the executive branch of the transitional government of Iraq. This included creating a Ministry of Environment, and also a Ministry of Water Resources from the former Ministry of Irrigation. These two ministries established a Center for Marshlands Restoration, located outside Baghdad, which has a small staff and budget and minimal planning and implementation capabilities for doing actual restoration of the marshes. To date, the Center does not have a website, has not published a restoration plan or strategy, and it is not clear whether and how foreign countries, companies, academic institutions or individuals can join the overall restoration effort. A website of the Ministry of Water Resources that contained several papers and plans advocating marshlands restoration no longer appears on the internet. While the marshlands are principally occupied by Shi'a Moslems, the current head of the Ministry of Water Resources is Kurdish.

For Online Discussion:

Imagine you were an Iraqi government official who wanted to start a campaign to restore the marshes. How would you go about it? What willingness, know-how and resources would you have to gather? Would you do it as an exclusive Iraqi program or would you try to internationalize the effort? Explain your reasoning.

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III-2b Iraq Press. 2003. Program to revive southern marshes launched. June 16.
[instructor's copy; as of January 2006, iraqpress.org no longer exists]

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http://www.iraqcoalition.org/pressreleases/20040511_water_progress.html

III-2d Coalition Provisional Authority. undated. IX. Improve Water Resources Management
<http://www.iraqcoalition.org/ES/water.html>

III-2e United Nations-Iraq. 2004. Ministry of Water Resources.
<http://www.uniraq.org/documents/MoWR.doc>

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<http://www.uniraq.org/documents/MoEnvironment.doc>

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<http://www.hq.usace.army.mil/cepa/pubs/nov03/story17.htm>

III-2k United States Army Corps of Engineers. 2003. Iraqi Ministry of Water Resources is similar to Corps. November.
<http://www.hq.usace.army.mil/cepa/pubs/nov03/story23.htm>

III-2l Durbak, Ivan. 2003. Engineer speaks on his assignment in Iraq as interim minister of irrigation. December 14. The Ukrainian Weekly.
<http://www.ukrweekly.com/Archive/2003/500308.shtml>

III-3 United Nations:

Concern for the fate of the marshes of Southern Iraq has been expressed primarily through numerous reports and meetings of the U.N. Environment Programme [UNEP], specifically its mapping and post-conflict assessment staff in Geneva, Switzerland. Beginning in early 2003, UNEP has held regular roundtable meetings on environmental and health conditions in Iraq, including the marshlands. Meeting participants have come from a variety of enthusiastic U.N. agencies and international NGOs who have been working in Iraq and Iran throughout the period between the 1991 Gulf War and last year's re-invasion. UNEP staff have repeatedly expressed their sense of urgency for ecological restoration of the marshes, but they have neither the power nor the funds to initiate projects. So far, the United Nations has been in a stand-by mode while the United States largely determines the course and pace of events in Iraq. The recent announcement of a US\$11 million grant from the Japanese government to UNEP within the framework of the UN Iraq Trust Fund may be the first sign of response to substantially internationalize work in the marshlands.

For Online Discussion:

How would you position the United Nations as a major player in the restoration of the marshes? Would you work more closely with people at the governmental, academic, citizens' organization or corporate sector? Or in some combination? Explain your reasoning.

References:

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**III-3j United Nations. 2004-2005. Cluster A: Agriculture, Food Security, Environment and Natural Resources Management -- "Support for Environmentally Sound Technologies (EST) Applications in the Iraqi Marshlands" (UNEP)
http://www.uniraq.org/operations/show_cluster.asp?Language=EN&ClusterID=A

III-4 Non-Governmental Organizations and Academia:

For more than ten years, two women-led organizations, AMAR Appeal [U.K.] and Iraq Foundation [U.S.] have conducted major environmental research and humanitarian aid programs in Iraq that include the marshes and the thousands of refugees who fled the region to Iran and other parts of the world. Their annual operating budgets -- in the few-million dollar range -- come from a variety of contributions, grants and contracts. Of note, Iraq Foundation's "Eden Again" project received approximately \$200,000 from the U.S. Department of State to assemble an international technical panel to deliberate on the feasibility of marshlands restoration. Their report was issued just before American and British troops re-invaded Iraq early in 2003.

In addition to humanitarian aid organizations, wildlife and nature organizations such as Birdlife International, Wetlands International and the office of the Ramsar Convention on wetlands protection, have given a high priority to the restoration of the marshlands. They recognize the intrinsic and historical value of the marshes as habitat for endangered and threatened species and as stopover locations for millions of migratory birds that traverse Asia, Europe and Africa.

For Online Discussion:

What if any kind of new organization would you create to specifically address the task of ecological restoration of the marshes? Who would comprise its membership? Where would its money come from? Who would do the actual work of restoration?

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<http://www.iraqfoundation.org/projects/edenagain/>

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<http://www.edenagain.org>

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<http://www.edenagain.org/publications/pdfs/newslet0704.html>

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<http://www.nwf.org/nationalwildlife/article.cfm?articleid=883&issueid=66>

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III-4i BirdLife International. 2003. BirdLife to assess environmental impact of war in Iraq. April 29.
**http://www.birdlife.org/news/news/2003/04/iraq_survey.html

III-4j Ornithomedia.com. 2004. le web de l'ornithologie. [homepage]
<http://www.ornithomedia.com/magazine/>

**III-4j1 Faire revivre les marais irakiens [Reviving the marshes of Iraq]. February 7.
http://www.ornithomedia.com/magazine/mag_art107_1.htm

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III-4m Ahmed, Hamid K. 2003. The Marshes of Southern Iraq and the Marsh Arabs: Genocide and Ecocide.
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<http://www.public.iastate.edu/~mariposa/hamid2.htm>

III-4n Iraqi American Chamber of Commerce & Industry. 2003. Think Tanks: Middle East Resources.
October 2.
**[instructor's copy; website no longer exists]

III-4o Iraqi American Chamber of Commerce & Industry. 2003. Think Tanks: U.S. Resources. October 2.
**[instructor's copy; website no longer exists]

III-5 Business and Industry:

The typical wetlands restoration requires a wide range of planning, design, construction and monitoring performed by scientists and engineers, materials specialists, semi-skilled and ordinary laborers working in combination at various times during the project. If the wetland is also a homeland, as is the case with southern Iraq, then the project must also include social scientists, community organizers, land surveyors, housing contractors and others responsible for the smooth return and resettlement of refugees and the recovery of their lost livelihoods.

A relatively small number of huge multi-purpose engineering design and construction firms have received contracts from the U.S. Government to work in post-war Iraq on infrastructure repair, health and social services, agriculture development, government administration and public education. But to date, only one company has been authorized and minimally funded to address the needs of the marshes and the people who used to live there. Clearly, for such a vast area, a fully-developed restoration plan could make use of hundreds of companies from Iraq and overseas and thousands of workers from among Iraq's refugee population.

The presence and effects of powerful oil companies already working in southern Iraq or hoping to work there soon must also be factored into the fate of the marshes; in the instructor's opinion, their influence on the course of events cannot be underestimated. Worldwide, oil exploration, extraction, refining and transporting have severely damaged ecosystems, uprooted and even killed indigenous people and contributed very little to their economies and well-being. Hypothetically, profits from careful oil development in and around the marshlands could pay for restoration. But for now, the chances for harmony between life on water and life on oil in southern Iraq seems as remote as the possibility of life on Mars.

For Online Discussion:

Beginning now, what kinds of commercial activities and opportunities can you imagine could be developed around a project for restoring the marshlands of southern Iraq? What kind of work would you personally prefer to do and why? How would you go about launching such a commercial venture?

References:

III-5a1 Development Alternatives Inc. [DAI]. 2003. DAI leads Marshlands restoration program. December.
[instructor's copy; website no longer exists]

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**III-5a2 Development Alternatives Inc. [DAI]. 2003-2005. Iraq Marshlands Restoration Project - Client: USAID. September 2003–September 2005. Working with communities to restore the marsh environment and protect the inhabitants' way of life.

http://www.dai.com/work/project_detail.php?pid=86

**III-5a3 DAI-USAID. Iraq Marshlands Restoration Program [homepage].

<http://www.iraqmarshes.org>

**III-5a4

III-5b Iraqi American Chamber of Commerce & Industry. 2003. Doing Business in Iraq.

http://www.i-acci.org/articles/publish/printer_191.shtml

III-5c United States Geological Survey. 2003. Mesopotamian Foredeep Basin: Total Petroleum Systems.

<http://energy.cr.usgs.gov/WEcont/regions/reg2/p2/P2024.pdf>

III-5d Platts. 2003. Platts Guide to Iraq's Oil Industry.

<http://plattsweb1.platts.com/features/Iraq/index.shtml>

III-5e Judicial Watch. 2003. Cheney energy task force documents feature map of Iraqi oilfields. July 17.

http://www.judicialwatch.org/071703.b_PR.shtml

III-5f Al-Gailani, Mohammad. 2003. Assessing Iraq's Oil Potential. Geotimes. October.

http://www.geotimes.org/oct03/feature_oil.html

Research/Writing Assignment for Part III:

From your readings and any other sources of information you find, create a directory of environmental, cultural and economic organizations, agencies, governments, schools, individuals, print and broadcast media, businesses and other groups institutions that could have a role to play in the restoration of the marshlands and the return of people to the region. Briefly describe what those roles could be and rank their potential as low, medium or high.

PART IV. RESTORATION TOOLBOX

Ecological restoration is the deliberate attempt to heal the wounds of forests, watersheds, prairies, mountains, wetlands, coastal zones and other land and water features that have suffered from natural and man-made disasters, wars, toxic contamination, extinction of species, economic hardships and exploitation, or combinations of these. The goal is to return damaged ecosystems to their "former selves", as closely as possible, in terms of structure, function, aesthetics, vitality, biological diversity, productivity and persistence.

Ecological restoration is recognized as a both a legitimate scientific profession and also an artistic and interpretive skill. It is practiced at the relatively small scale of a city park and on the much larger scale of entire landscapes and bioregions. Restoration specialists can offer no guarantee of successful outcomes -- one could say that its current state of development is comparable to the early years of heart transplantation in the medical profession. But that does not mean that the challenge of restoration should be, or will be, avoided. Indeed, more and more restoration efforts are required every year to counteract the ecological destruction that seems to be never-ending.

IV-1 Conservation:

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Conservation is fundamentally a moral imperative and a social ethic that imposes considerable and immutable responsibilities on humankind. The age-old practice of natural resource conservation comes from realizing -- and accepting -- that the Earth is a solitary, finite and interconnected planetary system upon which we depend that has precise regulatory processes and flows that perpetuate life but are vulnerable to the depletion, diversion, contamination and extinction of its resources. Thus, we are compelled to care for Nature as if it were our own life. Not doing so impoverishes us and everyone who comes afterwards.

The wonder of Mesopotamia and the lasting impression it has made on the world is due primarily to its longevity that, in turn, permitted the development of agriculture, cities, trade routes, literature, common law, and the other attributes of civilization that we take for granted today. This longevity was made possible by water, soil, plant and animal conservation practices that the inhabitants discovered, learned and taught each other over hundreds of generations in a span of time beyond ordinary comprehension. In a practical sense, their conservation ethic also enabled them to manage annual floods, withstand periodic droughts, and adapt to climate change and a steadily receding coastline that turned their watery surroundings from saline to fresh. The reward for all this was that they were able to remain "in place" as a distinct people for thousands of years; said another way, they were able to avoid becoming environmental refugees.

For Online Discussion:

Imagine that you wanted to organize an "Adopt-a-Marsh" program to help save a small portion of the marshlands in southern Iraq. How would you go about it? What would your first year of activities look like? How would you know if you were succeeding? Refer to "The Conservation Project Manual" of BP and Birdlife International for guidance.

References:

IV-1a **[audio]** Living on Earth. 2003. Restoring Iraq's Garden of Eden. March 28.
<http://www.loe.org/ETS/organizations.php3?action=printContentItem&orgid=33&typeID=17&itemID=145>

IV-1b Bibby, C.J. and C. Alder (eds). 2003. The Conservation Project Manual. BP Conservation Programme, Cambridge, UK.
<http://conservation.bp.com/pdfs/projectmanual/ConservationProjectManual.pdf>

IV-2 Ecological Restoration:

While the practice of conservation may be primarily concerned about saving what's left in an ecosystem, ecological restoration is concerned about reintroducing or replacing what's missing in the way of a system's historical structure and function. In a way, it is the art of "reading between the lines" of environmental disaster stories and then doing something to make the hidden texts reappear.

Ecological restoration has become a bonafide scientific profession with an international society, a peer-reviewed journal, periodic meetings and conferences, a distinctive technical vocabulary and perhaps thousands of projects going on throughout the world at any one time. Because of the large numbers of variables in the typical restoration project, some of them beyond the control of the people involved, the outcomes are often unpredictable. For that reason, restoration workers must have an open mind, good powers of observation and an experimental attitude. On the other hand, it is well-known that Nature has considerable restorative forces and may need little more than the re-supply of one or two major missing elements -- such as water or sunlight -- to begin recovery. For example, in some desiccated portions of the former marshlands of southern Iraq, reed beds have begun to grow again after residents opened check dams or breached embankments that were holding water back for ten years or more.

The most difficult restoration projects may be those where ecosystems suffer some kind of irreversible or nearly irreversible damage. Examples of biological damage of this kind include the extinction of one or more

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original plant or animal species, or the invasion of new species previously unknown to the region. Examples of physical damage include the sudden covering of land with deep layers of hot, impenetrable lava from a volcanic eruption on the Caribbean island of Montserrat and the spillage of huge amounts of petroleum from the oil fields of the Niger River delta. An example of chemical damage is the severe salinization of marsh beds caused by the accumulation of salts as the Iraqi government drained and dried the marshes in the 1990's.

For Online Discussion:

Based on your readings up to now and other information you have gathered, what differences can you find between the concepts, activities, goals and objectives of the current Iraq marshlands restoration project and the typical project described in documents of the Society for Ecological Restoration? How would you recognize the difference between a restoration project and a development project?

References:

IV-2a Windhager, Steve. Undated. The philosophy of ecological restoration: Reconnecting nature and ourselves.
<http://www.dmg.gov/resto-pres/wed-02-windhager.pdf>

IV-2b Society for Ecological Restoration International. 2003. Environmental Policies of the Society for Ecological Restoration.
http://www.ser.org/content/environmental_policies.asp (and in WebCT file)

IV-2c Clewell, Andre, John Rieger and John Munro. 2000. Guidelines for Developing and Managing Ecological Restoration Projects. Society for Ecological Restoration International.
http://www.ser.org/content/guidelines_ecological_restoration.asp

IV-2d Society for Ecological Restoration. 2002. The SER Primer on Ecological Restoration International.
http://www.ser.org/content/ecological_restoration_primer.asp

IV-3 Wetlands:

On an area basis, wetlands are among the most fertile and abundantly productive ecosystems. They are often found as permanent features where springs and streams, rivers and lakes and rivers and seas meet. In the latter, wetlands particularly shelter and promote the growth of wildlife, especially migratory fish, that require a variety of aquatic habitats during their life-cycle -- fresh water, brackish and salt. Wetlands also form temporarily or seasonally along watercourses or coastlines during floods and heavy storms.

Human populations have successfully established themselves in wetlands regions, although living conditions there can be precarious. When the early Virginia colonists settled at the mouth of the James River around 1607, they quickly succumbed to malaria and other wetlands-borne diseases. Had they established themselves a few miles upstream, above the slowly flowing marshes at the mouth of the river, their chances for survival may have been better. Once established, however, history has shown that marshlands can nurture whole civilizations, for example those of the Nile Delta and of the land between the Tigris and Euphrates rivers. There is much to learn from these inhabitants; their legends and lifeways ought to be recognized and respected as testaments to human adaptability and ingenuity.

For Online Discussion:

Educational material such as the "Discover Wetlands" curriculum from Washington State included in these readings, is intended for students who may live near wetlands but who likely don't actually live in them or directly depend upon them for food, clothing and shelter. Its purpose is to impart understanding, instill respect about wetlands and teach restraint against destroying wetlands. How much different would a

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curriculum have to be for refugee children returning to the deep marshes of southern Iraq? Would they need to be educated about wetlands? What could we teach them to their health, longevity and quality of life?

References:

IV-3a Lewis, Barry. 1995. Wetlands are more than mere swamps. In Environmental Associates= publication Know Your Environment. reprinted by National Academy of Sciences.
http://www.acnatsci.org/education/kye/nr/wetlands_short.html

IV-3b Lippy, Karen et al. 1995. Discover Wetlands: A Curriculum Guide. Washington State Dept. of Ecology. Pub. No. 88-16.
<http://www.ecy.wa.gov/pubs/8816b.pdf> and

IV-3c <http://www.ecy.wa.gov/pubs/8816c.pdf>

IV-3d Ramsar Convention. 2003. The Ramsar Convention on Wetlands.
<http://www.ramsar.org>

IV-3e Ramsar Convention. 2002. Welcome to: A Directory of Wetlands of International Importance. 7th edition.
<http://www.wetlands.org/RDB/Directory.html>

IV-4 Wetlands Restoration:

In the United States, the clamor for wetlands restoration, especially San Francisco's "Save the Bay" campaign during the early 1960's helped launch the nation's environmental movement. Concern for wetlands restoration surged again in the recent years as one Presidential administration after another let developers rampantly fill in wetlands along the Atlantic, Gulf and Pacific coasts and permit cities and towns to sprawl across the remaining marshes, flood plains and aquifers of the country's interior. The damage? Billions of dollars of homes, businesses and municipal facilities now in peril of floods and storms, lifetime volumes of precious groundwater drained away or seriously contaminated, and a whole generation of leaders slipping back into "Me First" and "Flat Earth" mentality.

Now, virtually every state's environmental agency is in damage-control mode. Some wetlands have been restored to a greater or lesser degree, but overall there is plenty of evidence that Americans still don't recognize, respect and value their wetlands. A few examples:

--The country's largest and most-expensive wetlands restoration project, the Florida Everglades, is thickly mired in politics under a thin veneer of southern environmentalism. This has been going on for 20 years or more.

--After a recent trip to Iraq, Louisiana's Governor asserted that her own state's rapidly disappearing coastal wetlands deserved equal attention as a war zone of a different kind.

BA federal program that permits developers to destroy wetlands if they re-create similar landscapes elsewhere has failed to stem the loss of wetlands nationwide. A devil's advocate report by the National Academy of Sciences tries to blunt this criticism using technical and obtuse language, but is not very convincing. In part, it states, "The significance of these results is not that equivalency among reference and newly managed environments is not reached or that mitigation efforts should not be done. These results demonstrate that 1) ecological equivalency may *not* be reached within a few months or for several years or even decades, depending on the attribute that is of interest; 2) the ecosystem does not move smoothly to an equilibrium or at the same rate for all components; and 3) some components, including ones identified as important in permits currently being issued, may *never* reach equivalency with the natural reference wetland.

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An obvious conclusion...is that the generally observed 5-year limit on monitoring is insufficient when evaluating whether a site has achieved parity with a reference system."

Under these circumstances, it may be fair to ask, "What can America offer the marsh-lost people of southern Iraq?" Knowing our record of success, would we really be their first choice?

For Online Discussion:

What arguments would you present and what incentives would you offer Iraq to persuade it to restore the wetlands to their former extent and function instead of letting them deteriorate further or be "reallocated" to dryland farming, urbanization and oilfield development?

References:

IV-4a Save the Bay. 2003. Welcome to Save the Bay!
<http://www.savesfbay.org/aboutus/history.cfm>

IV-4b New York Times Editorial. 2003. Politics and the Everglades. August 17. reprinted by The Everglades Foundation.
http://www.saveoureverglades.org/news/editorials/editorials_politics.html

IV-4c Blanco, Kathleen Babineaux. 2004. Louisiana's Wetlands [letter to the editor] New York Times, February 23. reprinted by America's Wetland Campaign to Save Coastal Louisiana.
<http://www.americaswetland.com/article.cfm?id=109&cateid=3&pageid=3&cid=18>

IV-4d Schoch, Deborah. 2001. Report Finds Deep Flaws in Wetlands Program: Researchers say plan that lets developers who destroy marshes re-create them elsewhere has failed to stem the loss of such ecosystems. Los Angeles Times. Reprinted in Common Dreams NewsCenter.
<http://www.commondreams.org/headlines01/0627-02.htm>

IV-4e Board on Environmental Studies and Toxicology. 2001. Outcomes of Wetland Restoration and Creation, chapter 2 in Compensating for Wetland Losses Under the Clean Water Act. National Academy of Sciences. pages22-45.
<http://www.nap.edu/books/0309074320/html22.html> to ...[html45.html](http://www.nap.edu/books/0309074320/html45.html)

IV-4f Maryland Department of the Environment. Undated. The Wetlands Restoration Guidebook. Nontidal Wetlands Division. 9pp.
<http://www.mde.state.md.us/assets/document/restore.pdf>

IV-4g United States Department of Agriculture. 2000. Wetlands Reserve Program: Restoring America's Wetlands. Natural Resources Conservation Service. PA-1659.
<http://www.nrcs.usda.gov/programs/wrp/WRPpub.pdf>

IV-4h Brookhaven National Laboratory. Undated. Technology Fact Sheet: Peconic River Remedial Alternatives: Wetlands Restoration/Constructed Wetlands.
<http://www.bnl.gov/erd/peconic/factsheet/wetlands.pdf>

IV-5 Wadi Gaza Nature Park:

While the fate of Iraq's marshlands hangs in the balance of war and peace, there is an unusual case of wetlands restoration in another conflicted environment right in the Middle East. In mid-2001, the U. S. Agency for International Development contributed more than \$3 million to the U.N. Development Programme of Assistance to the Palestinian People [UNDP/PAPP] to reclaim and develop Wadi Gaza, a small but significant marshland created by streams that flow out of the Israeli hills toward the Mediterranean Sea.

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According to a USAID news release in July 2002, "Determined to halt further ecological deterioration, before the damage becomes irreversible – while also giving an economic boost to thousands of unemployed Palestinians living nearby – USAID and the United Nations Development Program (UNDP) have joined forces. With the blessings of the Palestinian Ministry of Environmental Affairs and the Gazan people, USAID and UNDP are supporting a new vision for Wadi Gaza." There is no evidence, however, that USAID has introduced Iraqi wetland scientists and students to this small but intriguing project.

For Online Discussion:

In the management plan for Wadi Gaza published by MedWetCoast, how is the sequence of research and restoration steps put together? What similarities or differences would there be in a much larger project such as in southern Iraq? In the Wadi Gaza plan, what activities or steps appeal to you the most? Can you see yourself working on a project like that? Do you feel "ready to go?" If not, what kind of additional education and training do you think you need?

References:

IV-5a United States Agency for International Development. 2002. Opening of the New Wadi Gaza Nature Park Information Center. February 28.
http://www.usaid.gov/wbg/headline_19.htm

IV-5b United States Agency for International Development. 2002. Saving the Wetlands of Wadi Gaza [photographs]. June.
http://www.usaid.gov/wbg/story_0.htm

IV-5c United States Agency for International Development. 2002. Saving the Wetlands of Wadi Gaza. July.
http://www.usaid.gov/wbg/spotlight_0.htm

IV-5d United States Agency for International Development. 2003. Ambassador Chamberlain visits Wadi Gaza Nature Park. September 18.
http://www.usaid.gov/wbg/headline_126.htm

IV-5e MedWetCoast. 2002. MedWetCoast report: Management plan report: Wadi Gaza nature reserve management plan.
http://www.medwetcoast.com/article.php3?id_article=164

IV-5f MedWetCoast. 2002. Management Plan -- Wadi Gaza
http://www.medwetcoast.com/IMG/wadigazamp_03-2003.zip

Research/Writing Assignment for Part IV:

Suggest a sequence of at least twenty steps for restoring the marshes of southern Iraq and describe what you would try to accomplish each step of the way. On the positive side, take into account a) the thousands of refugees who need immediate work and places to resettle, b) the national and international sympathy for the plight of the marshes, and c) the array of organizations, agencies and international institutions ready and willing to provide expertise, funds and assistance. On the negative side, take into account a) the fact that the region is still a war zone, b) that it is almost entirely dried out, c) that it has been considerably depopulated for the past 10-15 years, and d) that it is likely heavily-polluted with environmental poisons, land mines, depleted uranium and other wastes of war. How much do you think you could accomplish in ten years? In twenty years?

PART V -- THE FLORIDA CONNECTION

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The expansive "river of grass" known as the Florida Everglades was once a life-giving hydrological feature in North America, comparable in size and function to the Mesopotamian marshlands of southern Iraq. Where, in Middle Eastern legend, Mesopotamia held the Garden of Eden, Juan Ponce de Leon searched the Everglades in the early 1500's for the Fountain of Youth he suspected was within. Mesopotamia and the Everglades both were the significant homelands of indigenous tribes and the habitat of diverse aquatic and semi-aquatic plants and animals.

Under the domination of Saddam Hussein, the Iraqi marshlands became a manmade ecological catastrophe in less than ten years. It took longer, and more than tyranny, for the Everglades to reach its own emergency status. That began in the 1880's, then accelerated after the 1940's, caused by a succession of American Presidents, Florida State Governors, their respective Congress and State Legislature and a varieties of agencies who shared the deliberate goal to eliminate the natives, drain the marshes and permit virtually unlimited agriculture, housing, commercial development and cities to spread across the land. At the center of the Everglades' historic demise has been the U.S. Army Corps of Engineers, the same agency now charged with repairing the damaged Everglades and also, for the moment, with determining the fate of Iraq's marshes.

V-1 The Everglades 1:

The Everglades ecosystem is a national and global treasure. Public pressure has secured National Park status for approximately the southern third of the wetlands, while the remainder is in lesser government protection or held as private or municipal property. Agricultural development and urbanization has destroyed approximately half of the Everglades' original extent. Still, there is a large water-holding capacity that is both an asset and a liability. It is an asset because it provides conveniently drawn irrigation water for sugar cane and other crops extensively grown on land drained and converted to plantation-style agriculture, and drinking water to cities that sprawl along both the southeastern and southwestern Florida coasts. To deliver the water, the U.S. Army Corps of Engineers ["the Corps"] designed, built and maintains a network of canals and diversions. At the same time, Everglades water is a liability because, in rainy seasons, water flow from the Everglades threatens those same low-lying farms and cities that have encroached into the wetlands. Thus, the Corps also created a drainage network to intercept and accelerate the flow of water directly into Florida Bay. This simultaneous dependence upon and wastage of Everglades' water -- mediated by 1,000 miles of canals, 720 miles of levees and several hundred water control structures -- has come at the ultimate destruction of these wetlands.

After at least twenty years of obvious failure at managing Everglades= water resources -- in the Corps' words, "unintended adverse effects on the unique and diverse environment that constitutes south Florida ecosystems, including the Everglades and Florida Bay" -- citizens forced Congress to pass a National Water Resources Development Act in 2000 that directed the Corps to develop a Comprehensive Everglades Restoration Plan to "restore, protect and preserve the water resources of central and southern Florida, including the Everglades." The estimated cost is almost \$8,000,000,000 over approximately thirty years. On close examination of the Act, however, the goals are not directly ecological, but economic and social: regain lost storage capacity, restore more natural hydro patterns, improve timing and quantities of fresh water deliveries to estuaries and restore water quality conditions. This overwhelming emphasis on continued use of the Everglades to subsidize excessive water use by Big Sugar, Big Farming and Big Cities, has become a serious point of contention.

For Online Discussion:

What can you discern are the similarities and differences between the way the National Park Service and the U.S. Army Corps of Engineers look at the Everglades and interpret their respective responsibilities toward these wetlands? Give specific examples.

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V-1a Florida International University. 2004. Everglades Information Network: A collaborative project of Florida International University Libraries and numerous other libraries and information providers.
<http://everglades.fiu.edu>

V-1b Florida International University. 2004. Everglades Digital Library.
<http://everglades.fiu.edu/library>

V-1c Everglades University. 2004. The Everglades University Advantage.
<http://www.evergladescollege.edu>

V-1d United States National Park Service. 2001. Everglades National Park Strategic Plan, 2001-2005.
<http://www.nps.gov/ever/current/strategicplan.pdf>

V-1e _____. 2003. The Everglades Ecosystem: Everglades National Park.
<http://www.nps.gov/ever/eco>

V-1f _____. 2000. Restoration Efforts: Everglades National Park: Evolution of Ecosystem Restoration Efforts.
<http://www.nps.gov/ever/eco/restore.htm>

V-1g United States Army Corps of Engineers. 2004. Rescuing an endangered ecosystem B the journey to restore America=s Everglades.
<http://www.evergladesplan.org>

_____. Undated. The Comprehensive Everglades Restoration Plan (CERP)

V-1h http://www.evergladesplan.org/about/landing_about.cfm

V-1i http://www.evergladesplan.org/about/rest_plan.cfm

V-1j http://www.evergladesplan.org/about/rest_plan_01.cfm

V-1k http://www.evergladesplan.org/about/rest_plan_02.cfm

V-1l http://www.evergladesplan.org/about/rest_plan_03.cfm

V-2 The Everglades 2:

After Congress passed landmark legislation in 2000, Florida followed with its own "Everglades Forever Act" to reverse years of destruction of land, water and wildlife. The intentions of both laws were to replenish the Everglades' water and reduce pollution -- especially excessive phosphorus -- going into it from sugar cane plantations and other farming activities. It cannot be said that restoration is on schedule. A relatively small cast of very influential characters is retarding the process, with local, regional, national and international political overtones clearly showing through. Correspondingly, all of this has been scrutinized and criticized, broadcasted and written about, not only within Florida but also at a great distance, even overseas. As a consequence, there is global awareness of the dynamics of failed ecological restoration of wetlands, and many are wondering what can be done to avoid the same fate in the effort to restore the marshes of southern Iraq, a wetland of comparable size that coincidentally covers gigantic deposits of crude oil beneath the surface.

For Online Discussion:

Where do you think the balance should be made between a) farming and urban development in southern Florida versus b) the integrity of the Everglades as a functioning wetlands ecosystem? If you were Governor of Florida, how would you resist the pressures from farming and real estate interests described in the

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readings? If you were Florida's director of natural resources, what would you propose to swing the balance back towards protecting and restoring the Everglades?

References:

V-2a Levin, Ted. 2003. Bitter Sweets: A politically connected industry devastates the Everglades. E Magazine. November 28.
<http://www.emagazine.com/view/?383>

V-2b Dahlburg, John Thor. 2003. The sway of cattails and politics. Los Angeles Times. August 22. reprinted at
<http://www.mindfully.org/Heritage/2003/Everglades-Politics22aug03.htm>

V-2c Grunwald, Michael. 2002. The Swamp [series of eight articles]. Washington Post. June 23-26. series reprinted at
<http://www.ussugar.com/sugarnews/everglades/swamp.html>

V-2d _____. 2002. The swamp: Can \$8 billion restore the Everglades? A rescue plan, bold and uncertain. Washington Post. June 23. reprinted at
http://www.ussugar.com/sugarnews/everglades/swamp_series/swamp_part1.html

V-2e _____. 2002. The swamp: Mining the Everglades in order to save it: Between rock and a hard place. Washington Post, June 24. Reprinted at
http://www.ussugar.com/sugarnews/everglades/swamp_series/swamp_part2.html

V-2f _____. 2002. The swamp: To the White House, by way of the Everglades. Washington Post. June 24. reprinted at
http://www.ussugar.com/sugarnews/everglades/swamp_series/swamp_part3.html

V-2g _____. 2002. The swamp: Water Quality is long-standing issue for tribe. Washington Post. June 24. reprinted at
http://www.ussugar.com/sugarnews/everglades/swamp_series/swamp_part4.html

V-2h _____. 2002. The swamp: Growing Pains in southwest Florida: More development pushes Everglades to the edge. Washington Post. June 25. reprinted at
http://ussugar.com/sugarnews/everglades/swamp_series/swamp_part5.html

V-2i _____. 2002. The swamp: when in doubt, blame Big Sugar: Once the Everglades chief ecological villain, Industry has plenty of company. Washington Post. June 25. reprinted at
http://www.ussugar.com/sugarnews/everglades/swamp_series/swamp_part6.html

V-2j _____. 2002. The swamp: A river unleashed: An environmental reversal of fortune: The Kissimmee's revival could provide lessons for restoring the Everglades. Washington Post. June 26. Reprinted at
http://www.ussugar.com/sugarnews/everglades/swamp_series/swamp_part7.html

V-2k _____. 2002. The swamp: Among environmentalists, the Great Divide. Washington Post. June 26. Reprinted at http://www.ussugar.com/sugarnews/everglades/swamp_series/swamp_part8.html

V-3 Marshlands Congressional Hearing:

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In February 2004, U.S. Congresswoman Ileana Ros-Lehtinen, representing Miami, Florida, convened a hearing in her capacity as chair of the Subcommittee on the Middle East and Central Asia, committee on International Relations. The subject of the hearing was "United States and the Iraqi Marshlands: An Environmental Response." Four witnesses testified. The hearing was webcast on the internet and is still posted there. To the instructor's knowledge, it is the only presentation on the plight and fate of the marshes that the U.S. government has ever given to the American public; all other presentations have been private or to limited audiences.

In her remarks, Rep. Ros-Lehtinen noted that Congress did not approve the Administration's 2003 request for \$100 million toward restoration and that "today, however, we must reexamine the issue." In addition to her concern for the marshes per se, she specifically added "and if possible a restoration of the homes for the Marsh Arabs, so many of whom remain as refugees in their own country and in neighboring ones as well."

For Online Discussion:

What are the similarities and differences among the testimony of the hearing witnesses? Do you have confidence in the program described by the State Department witnesses? What does the U.S. government plan to do with the network of drains, levees and canals that Saddam Hussein built to destroy the marshes? What, if any, sense of urgency did the witnesses express? How does this compare with predictions made by the United Nations Environment Programme in its reports that you read earlier in the course?

References:

V-3a Ros-Lehtinen, Ileana. 2004. Congressional website.
<http://www.house.gov/ros-lehtinen>

U.S. House of Representatives. 2004. "United States and the Iraqi Marshlands: An Environmental Response". February 24.

V-3b **[meeting notice]** http://wwwc.house.gov/international_relations/108/meca022404.htm

V-3c **[audio/video webcast]** http://boss.streamos.com/real/hir/34_me022404.smi

V-3d http://wwwc.house.gov/international_relations/108/ros022404.htm

V-3e http://wwwc.house.gov/international_relations/108/wes022404.htm

V-3f http://wwwc.house.gov/international_relations/108/mir022404.htm

V-3g http://wwwc.house.gov/international_relations/108/alw022404.htm

V-4 Ghosts of the Marshes:

There are only a few books written by Western authors about the time before the marshes were destroyed by Saddam Hussein's regime: *The Marsh Arab: Haji Rikkan* by Fulanain (pseudonym of Monica Grace Hedcock and Stuart Edwin Hedcock) [1928], *Marsh Dwellers of the Euphrates Delta* by S.M. Salim [1962], *People of the Reeds* by Gavin Maxwell [1957], *The Marsh Arabs* by Wilfred Thesiger [1964] and *Iraq: Land of Two Rivers* by Gavin Young [1980]. Two brief articles appeared in *National Geographic Magazine*, one in 1958 by Wilfred Thesiger and one in 1976 by Gavin Young, then nothing afterwards. The people described in those books and articles are likely very old or already dead, leaving the marshes bereft of leaders with personal memory of a time when the marshes functioned as a relatively intact ecosystem, culture and economy. This also leaves the marshes and the people vulnerable to plans for the region that emphasize development on dry land more than restoration of a watery world that once supported a half-million people. Therefore, anyone who advocates restoration rather than development begins at a distinct disadvantage.

For Online Discussion:

What elements of life in the former marshes would you like to restore in the present day? What elements would you modify in some way to improve the environment and people's health, living standards and ability to resist future threats?

References:

V-4a Thesiger, Wilfred. 1958. *Marsh Dwellers of Southern Iraq: Primitive Ma'dan, Building Cathedral-like*

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Houses of Reeds, Share a Watery Domain with Buffaloes and Wild Boars. National Geographic, vol. 113, February, pp202-239.
[copy in library]

V-4b Young, Gavin. 1976. Water Dwellers in a Desert World. National Geographic, v. 149, April, pp. 502-523. [copy in library]

V-5 What Is Education For?:

The people and the environment of the marshes of southern Iraq have suffered a major man-made disaster. For more than ten years, government officials, scientists and engineers from all over the world professed the goals of ecological restoration and refugee resettlement in the marshes. Yet, today, many of those same people seem to have prematurely judged the marshes "dead on arrival" before even attempting the first stages of actual restoration. Their pronouncements not only dampen international enthusiasm for rejuvenating the "Garden of Eden" but also deprive former inhabitants and others who might want to live in the region – and many generations to come – the chance to challenge these prejudgements and make themselves a homeland that might again achieve sustainability in the Middle East. For this to happen, new leaders, paradigms and plans for restoration must arise and become quickly rooted in the region, with cooperation and support from individuals, organizations, governments, companies and institutions within Iraq and outside the country.

For Online Discussion:

What is education for? What one additional principle for education can you add to David Orr's list of six? How would you apply these principles to the restoration of southern Iraq's marshes?

References:

V-5a Orr, David. 1991. What is education for? in Context Institute. The Learning Revolution (IC#27). Winter, p. 52ff.
Reprinted at
<http://www.context.org/ICLIB/IC27/Orr.htm>

Research/Writing Assignment for Part V:

Listen to and watch again the recorded Congressional webcast and read the prepared testimony of the U.S. Congressional hearing on Iraq's marshes held in Washington, D.C. on February 24, 2004. Then, prepare your own testimony as if you were a representative from any nationality of real or hypothetical government agency or non-governmental organization, or as an individual testifying on your own behalf. In your own words, explain your purpose for appearing before the hearing, give a report of your priorities and activities, goals and objectives. You can base these on any material already covered in the course.

Stuart M. Leiderman leiderman@mindspring.com 603.776.0055